

In the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

 1. – 3. (Cancelled)

4. (Currently amended) A thin film magnetic head according to Claim [[4]] 30, wherein the Young's modulus E of the gap layer is $E \geq 127.4$ (GPa).

5. (Currently amended) A thin film magnetic head according to Claim [[4]] 29, wherein the atomic ratio of N of the SiON film is $1 \text{ (at\%)} \leq N \text{ atomic \%} \leq 6 \text{ (at\%)}$.

6. (Withdrawn) A thin film magnetic head comprising:
an insulating gap layer between cores made of a magnetic material;
and
a coil for inducing a recording magnetic field in the cores,
wherein the gap layer comprises a SiO_2 film, and
wherein the Young's modulus E of the gap layer is $E > 123.2$ (GPa).

7. (Withdrawn) A thin film magnetic head according to Claim 6, wherein the Young's modulus E of the gap layer is $E \geq 127.4$ (GPa).

8. (Currently amended) A thin film magnetic head comprising:

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a magnetoresistive element capable of detecting a recording signal due to a change in electric resistance with an external magnetic field; and shield layers formed above and below the magnetoresistive element with gap layers provided therebetween, wherein the cores have a facing surface, ~~wherein the amount of protrusion of at least one of the gap layers from the facing surface is less than or equal to about 3.5 nm, and~~ wherein at least one of the gap layers comprises a SiON film having a Young's modulus E where $E > 123.2$ (GPa).

9. (Cancelled)

10. (Previously presented) A thin film magnetic head according to Claim 8, wherein the atomic ratio of N of the SiON film is $0 \text{ (at\%)} < N \text{ atomic \%} \leq 6 \text{ (at\%)}$.

11. (Currently amended) A thin film magnetic head according to Claim 8, wherein the Young's modulus E of the at least one gap layer is $E \geq 127.4$ (GPa).

12. (Previously presented) A thin film magnetic head according to Claim 11, wherein the atomic ratio of N of the SiON film is $1 \text{ (at\%)} \leq N \text{ atomic \%} \leq 6 \text{ (at\%)}$.

13. (Withdrawn) A thin film magnetic head comprising:

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a magnetoresistive element capable of detecting a recording signal due to a change in electric resistance with an external magnetic field; and shield layers formed above and below the magnetoresistive element with gap layers provided therebetween, wherein at least one of the gap layers comprises a SiO_2 film, and wherein the Young's modulus E of at least one of the gap layers is $E > 123.2$ (GPa).

14. (Withdrawn) A thin film magnetic head according to Claim 13, wherein the Young's modulus E of at least one of the gap layers is $E \geq 127.4$ (GPa).

15. (Withdrawn) A method of manufacturing a thin film magnetic head comprising:
arranging a target and a substrate opposite to the target in a deposition apparatus; and
forming a gap layer of the thin film magnetic head,
wherein in forming the gap layer, a target composed of SiO_2 is prepared, and then sputtered with N_2 gas used as a sputtering gas flowing into the apparatus to form the gap layer comprising a SiON film.

16. (Withdrawn) A method of manufacturing a thin film magnetic head according to Claim 15, wherein the flow rate ratio of the N_2 gas in the sputtering gas is $0\% < \text{flow rate ratio of } \text{N}_2 \text{ gas} \leq 30\%$.

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17. (Withdrawn) A method of manufacturing a thin film magnetic head according to Claim 16, wherein the flow rate ratio of the N₂ gas is preferably in the range of $5\% \leq \text{flow rate ratio of N}_2 \text{ gas} \leq 30\%$.

18. (Withdrawn) A method of manufacturing a thin film magnetic head according to Claim 15, wherein forming the gap layer, comprises supplying a bias electric power to the substrate side.

19. (Withdrawn) A method of manufacturing a thin film magnetic head comprising:

arranging a target and a substrate opposite to the target in a deposition apparatus; and

forming a gap layer of the thin film magnetic head,

wherein in forming the gap layer, the target composed of SiO₂ is prepared and then sputtered with the bias electric power supplied to the substrate to form the gap layer comprising a SiO₂ film having a Young's modulus E of $E > 123.2 \text{ (GPa)}$.

20. (Withdrawn) A method of manufacturing a thin film magnetic head according to Claim 19, wherein the bias electric power is equal to or greater than 10 W.

21. (Cancelled)

22. (Currently amended) A thin film magnetic head according to claim ~~[[4]]~~ 35, wherein the amount of protrusion at least one of the gap layers from the facing surface is less than or equal to about 3 nm.

23. – 28. (Cancelled)

29. (Previously presented) A thin film magnetic head comprising:
a gap layer provided between cores made of a magnetic material;
and
a coil for inducing a recording magnetic field in the cores,
wherein the gap layer comprises a SiON film, the atomic ratio of N
of the SiON film being $0 \text{ (at\%)} < \text{N atomic \%} \leq 6 \text{ (at\%)}$.

30. (Previously presented) A thin film magnetic head according to
Claim 29, wherein the Young's modulus E of the gap layer is $E > 123.2 \text{ (GPa)}$.

31. – 34. (Cancelled)

35. (New) A thin film magnetic head comprising:
a gap layer provided between cores made of a magnetic material;
and
a coil for inducing a recording magnetic field in the cores,
wherein the gap layer is a film comprising at least silicon and
oxygen, the gap layer having a Young's modulus E where $E > 123.2 \text{ (GPa)}$.

36. (New) A thin film magnetic head according to Claim 35, wherein the
Young's modulus E of at least one of the gap layers is $E \geq 127.4 \text{ (GPa)}$.

37. (New) A thin film magnetic head according to Claim 35, wherein the atomic ratio of N of the SiON film is $0 \text{ (at\%)} < \text{N atomic \%} \leq 6 \text{ (at\%)}.$

38. (New) A thin film magnetic head according to Claim 36, wherein the atomic ratio of N of the SiON film is $1 \text{ (at\%)} \leq \text{N atomic \%} \leq 6 \text{ (at\%)}.$

39. (New) A thin film magnetic head comprising:
a magnetoresistive element capable of detecting a recording signal due to a change in electric resistance with an external magnetic field; and
shield layers formed above and below the magnetoresistive element with gap layers provided therebetween,
wherein at least one of the gap layers comprises a SiO_2 film, and
wherein the atomic ratio of N of the SiON film is $0 \text{ (at\%)} < \text{N atomic \%} \leq 6 \text{ (at\%)}.$

40. (New) A thin film magnetic head according to Claim 39, wherein the Young's modulus E of at least one of the gap layers is $E \geq 127.4 \text{ (GPa)}.$

41. (New) A thin film magnetic head according to Claim 39, wherein the Young's modulus E of at least one of the gap layers is $E > 123.2 \text{ (GPa)}.$

42. (New) A thin film magnetic head according to Claim 40, wherein the atomic ratio of N of the SiON film is $1 \text{ (at\%)} \leq \text{N atomic \%} \leq 6 \text{ (at\%)}.$

43. (New) A thin film magnetic head comprising:

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and

an insulating gap layer between cores made of a magnetic material;

a coil for inducing a recording magnetic field in the cores,
wherein the gap layer is a film comprising silicon and oxygen, and
wherein the Young's modulus E of the gap layer is $E > 123.2$

(GPa).

44. (New) A thin film magnetic head comprising:

a magnetoresistive element capable of detecting a recording signal
due to a change in electric resistance with an external magnetic field; and
shield layers formed above and below the magnetoresistive
element with gap layers provided therebetween,
wherein the cores have a facing surface,
wherein at least one of the gap layers is a film comprising silicon
and oxygen having a Young's modulus E where $E > 123.2$ (GPa).
